

V-Band Wireless Surface Networks, Phase I

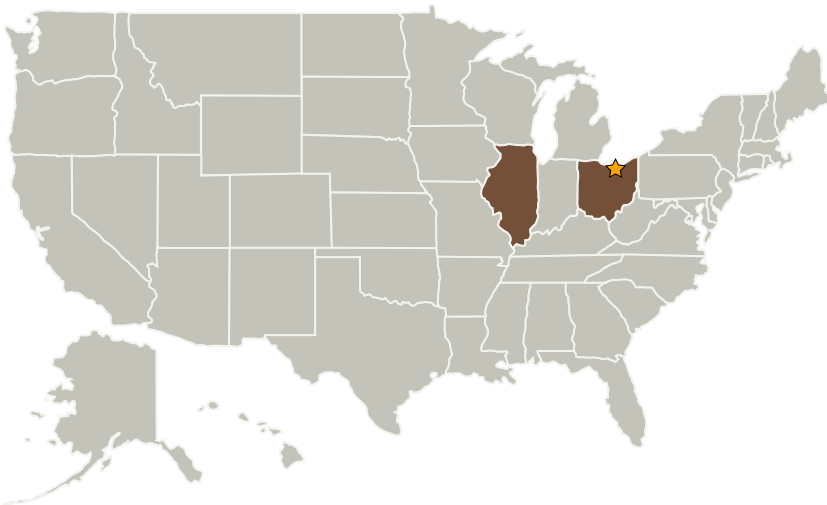
Completed Technology Project (2008 - 2008)



Project Introduction

NASA GLENN RESEARCH CENTER in Topic O1.10 has identified the need to provide surface communications networks for human and robotic missions to explore the Moon and Mars. The network nodes will be located at fixed sites, as well as on robotic vehicles and on humans that are moving about on the surface. The purpose is for relatively short range, but highly reliable, support of bi-directional voice, video and data services. Such nodes will be attached to sensors, other devices, Rover robots, access network terminals and humans. The requirement for low cost means that the hardware should leverage available and emerging commercial off-the-shelf technology (COTS) to the extent possible. The work completed under topic O1.10 is intended to be compatible and integrated with results from other topics. Understanding that this topic includes requirements for the integration of a number of communication and networking technologies, proposed herein is a self-healing, ad hoc, disruption tolerant network, including protocols for intelligent, autonomous link management and reliability. For purposes of the Phase I demonstration, the wireless network will operate at 60 GHz, and utilize emerging commercial off-the-shelf (COTS) technology for cost minimization.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Glenn Research Center (GRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
Epsilon Lambda Electronics Corporation	Supporting Organization	Industry Small Disadvantaged Business (SDB), Veteran-Owned Small Business (VOSB)	West Chicago, Illinois

Primary U.S. Work Locations

Illinois	Ohio
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Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Robert Knox

Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
 - └ TX05.3 Internetworking
 - └ TX05.3.3 Information Assurance